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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/976,036	10/15/2001	Hidehiko Tomokuni	011388	1597

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EXAMINER

AHMED, SHEEBA

ART UNIT	PAPER NUMBER
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1773

DATE MAILED: 07/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicati n N .

09/976,036

Applicant(s)

TOMOKUNI ET AL.

Examiner

Sheeba Ahmed

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-- The MAILING DATE of this communicati n appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) 11 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☐ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: .

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-10, drawn to a fiber-reinforced plastic molded article, classified in class 428, subclass 323+.
 - II. Claim 11, drawn to a method of making a fiber-reinforced plastic molded article, classified in class 427, subclass 421+.

The inventions are distinct, each from the other because of the following reasons:

Inventions II and I are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case, the three-layer fiber-reinforced plastic molded article could be made by adhesively bonding the three layers together rather than spray coating the intermediate layer into the surface layer.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

During a telephone conversation with Stephen Adrian on June 5, 2003 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-10. Affirmation of this election must be made by applicant in replying to this

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Office action. Claim 11 is withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 3-7, 9, and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Kurtz et al. (US 4,568,604).

Kurtz et al. disclose a three-layer laminate (***corresponding to the molded article of the claimed invention***) comprising a gel coat layer (***corresponding to the surface layer A of the claimed invention and meeting the limitations of claim 9***), a glass fiber layer which comprises a polyester resin mixed with Fiberglass chops (***corresponding to the fiber-reinforced plastic layer C of the claimed invention***), and an intermediate layer of synthetic resin and filler (***corresponding to the intermediate layer B of the claimed invention***) between the gel coat layer and the

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glass fiber layer (Column 2, lines 1-9 and Column 4, lines 48-50). The intermediate layer comprises a polyester resin, which is a terpolymer of orthophthalic anhydride, maleic acid and propylene glycol (**corresponding to the polymerization curable unsaturated resin and meeting the limitations of claim 5**), which is mixed with styrene (**corresponding to the polymerizable unsaturated monomer**) to maintain the polyester in fluid form. The filler is a mixture of calcium silicate and mica (Column 2, lines 29-40). Figure 1 shows that the exterior surface of a mold may be coated with a layer of the gel coat followed by the intermediate layer and the glass fiber layer (**thus meeting the limitations of claim 10**). Furthermore, Table 1 indicates that the filler content in the intermediate layer is about 48-weight % whereas the thixotrope content is between 0.5 to 3 percent by weight (**thus meeting the limitations that the content of the filler is between 30 to 150 parts by weight and that the content of the thixotropic agent is 1 to 4 parts by weight**) (Column 3, lines 22-56 and Column 4, lines 33-35). With regards to the limitations of claim 3 and 4, which set forth the gelation time and viscosity of the curable resin composition, the Examiner takes the position that such limitations are process limitations and that the cured resin composition is the same regardless of the gelation time and viscosity of the uncured resin composition. Furthermore, with regards to the limitations that the curable resin composition is able to form a casting plate having a tensile elongation percentage of 2 to 50%, a Barcol hardness of 30 or more, a heat deflection temperature of 60°C or more and a tensile strength of 10 MPa or more (**as recited in claims 1, 6, and 7**), the Examiner takes the position that such material properties are inherent in the

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intermediate layer taught by Kurtz et al. given that the intermediate layer taught by Kurtz et al. and that of the claimed invention both have the same chemical composition, i.e., both comprise the same unsaturated resin, the same unsaturated monomer, the same filler in the same amount and the same thixotropic agent in the same amount. All limitations of the claimed invention are either inherent or disclosed in the above reference.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 2 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kurtz et al. (US 4,568,604) in view of Burnell-Jones (US 6,207,077 B1).

Kurtz et al. disclose a three-layer laminate (***corresponding to the molded article of the claimed invention***) comprising a gel coat layer (***corresponding to the surface layer A of the claimed invention***), a glass fiber layer which comprises a polyester resin mixed with Fiberglass chops (***corresponding to the finer-reinforced plastic layer C of the claimed invention***), and an intermediate layer of synthetic resin and filler (***corresponding to the intermediate layer B of the claimed invention***) between the gel coat layer and the glass fiber layer (Column 2, lines 1-9 and Column 4, lines 48-50). The intermediate layer comprises a polyester resin, which is a terpolymer

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of orthophthalic anhydride, maleic acid and propylene glycol (***corresponding to the polymerization curable unsaturated resin***), which is mixed with styrene (***corresponding to the polymerizable unsaturated monomer***) to maintain the polyester in fluid form. The filler is a mixture of calcium silicate and mica (Column 2, lines 29-40). Figure 1 shows that the exterior surface of a mold may be coated with a layer of the gel coat followed by the intermediate layer and the glass fiber layer. Furthermore, Table 1 indicates that the filler content in the intermediate layer is about 48-weight % whereas the thixotrope content is between 0.5 to 3 percent by weight (Column 3, lines 22-56 and Column 4, lines 33-35).

Kurtz et al. do not specifically state that the filler is a hollow filler having a mean particle size of 5 to 200 microns (*as recited in claim 2*) or a calcium carbonate powder (*as recited in claim 8*).

However, Burnell-Jones disclose a polymer blend usable as a moldable resin (Column 12, lines 10-11) comprising an unsaturated polyester, which is a reaction product of an unsaturated acid such as maleic acid and a polyhydric alcohol such as propylene glycol and comprises a saturated dibasic acid such as orthophthalic acid. The moldable blend further comprises thixotropic agents such as fumed silica in an amount of 2 to 15% by weight (Column 15, lines 62-67) and reinforcing fillers such as calcium carbonate and calcium silicate (Column 16, lines 55-66). Burnell-Jones further teaches that hollow microspheres having a particle size in the range of 5 to 5000 microns are widely used in such resin systems to reduce density, to improve stiffness and impart

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resistance, to reduce crazing and to displace large volumes of higher priced polymers (Column 18, lines 23-48).

Accordingly, it would have been obvious to one having ordinary skill in the art to replace the fillers taught by Kurtz et al. with hollow microspheres having a particle size in the range of 5 to 5000 microns given that Burnell-Jones specifically teach that hollow microspheres are widely used in unsaturated polyester resin systems to reduce density, to improve stiffness and impart resistance, to reduce crazing and to displace large volumes of higher priced polymers. Furthermore, Burnell-Jones teaches that calcium silicate and calcium carbonate are equivalent fillers known in the art. Therefore, because these two fillers were art-recognized equivalents at the time the invention was made, one of ordinary skill in the art would have found it obvious to substitute calcium carbonate for calcium silicate. With regards to the limitations that the curable resin composition is able to form a casting plate having a tensile elongation percentage of 2 to 50%, a Barcol hardness of 50 or more (*as recited in claim 1*), the Examiner takes the position that such material properties are inherent in the intermediate layer taught by Kurtz et al. given that the intermediate layer taught by Kurtz et al. and that of the claimed invention both have the same chemical composition, i.e., both comprise the same unsaturated resin, the same unsaturated monomer, the same filler in the same amount and the same thixotropic agent in the same amount.


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Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sheeba Ahmed whose telephone number is (703)305-0594. The examiner can normally be reached on Mondays and Fridays from 8am to 6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Thibodeau can be reached on (703)308-2367. The fax phone numbers for the organization where this application or proceeding is assigned are (703)305-5408 for regular communications and (703)305-3599 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)306-5665.


Sheeba Ahmed
Art Unit 1773
June 30, 2003